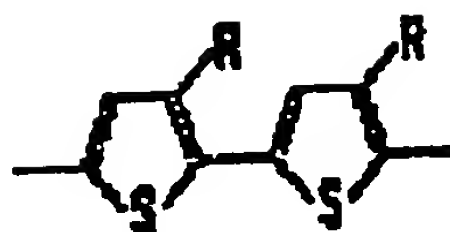


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MANUFACTURE OF ORGANIC THIN FILM TRANSISTOR
LUCENT TECHNOLOGICAL INC

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Abstract: PROBLEM TO BE SOLVED: To form an organic semiconductor layer by forming an active layer of organic material and permitting the layer to have a carrier mobility of a specific value or higher and a conductivity of a specific value or lower.

SOLUTION: An active semiconductor layer is formed of organic polymer having a carrier mobility of approximately $10^{-3} \text{ cm}^2/\text{Vs}$ or higher and a conductivity of approximately 10^{-5} s/cm or lower. An organic material active layer is composed of regioregular homopolymer (3-alkylthiophene). The alkyl group has at least 2-12 carbon atoms and is represented by a character R. Branched chains, such as isopropyl and isobutyl, and straight chain alkyl are the examples of the alkyl group. In the regioregular homopolymer of the 3-alkylthiophene monomer, the orientation of the alkyl group of the thiophene part is regular in regard to the thiophene part which adjoins the polymer chain.

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